

REMARKS

In the Final Office Action, Claims 1-20 stand rejected. In response, Claims 1, 5-7, 9, 11, 13, 15, and 17-19 are amended, Claims 2-4, 8, 10, and 20 are cancelled, and no claims are added. Applicants respectfully request reconsideration of pending Claims 1-20 in view of at least the following remarks.

I. Objection to the Specification and Claim Rejections Under 35 U.S.C. §101

Claims 15-20 are objected to because the specification fails to provide proper antecedent basis for the claimed subject matter. Claims 15-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

In response, Claims 15-20 are amended as suggested by the Examiner. Therefore, please withdraw the objection to the specification and claims in view of the amendments to Claims 15-20.

II. Claim Rejections Under 35 U.S.C. §102

Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al., U.S. Patent 6,996,677 (herein after referred to as “Lee”). Applicants respectfully traverse this rejection.

Claim 1 recites:

1. A method, comprising:
encountering a function call instruction that calls a called function during program execution;
saving a return address in a first stack and in a second stack at the same time, the return address containing an instruction to be executed after execution of the called function, wherein the second stack stores a return address for each function call instruction that calls a called function during program execution;
executing the called function;
determining if the return address stored in the first stack matches the return address stored in the second stack to provide protection from a buffer overflow attack;
executing exception handling code if an exception is generated when the return addresses do not match,

wherein the exception handling code determines what value to pass to a program pointer based on the return address retrieved from each of the first and second stacks. (Emphasis added.)

Lee is generally directed to a method for protecting memory stacks. As disclosed by Lee, upon execution of a jump to a subroutine, a return address is stored in a first location in a stack memory while a second location, separate from the stack memory, is used to store the address of the first location and a third location, separate from the stack memory, is used to store the return address itself. (See Abstract.) As disclosed by Lee, failure to detect a match between the address stored in the second location and the first location of the stack memory, or the failure to detect a match between the return address stored in the third location and the return address stored in the first location results in interrupt generation. (See Abstract.)

In contrast with Claim 1, Lee does not disclose or suggest saving a return address in a first stack and in a second stack at the same time, wherein the second stack stores the return address for each function call instruction that calls a called function during program execution. Although Lee discloses the storage of a return address in a first location in the stack memory, Lee does not disclose or suggest storing the return address in a first stack and a second stack at the same time, as in Claim 1.

In contrast with Claim 1, second and third locations, are separate from the stack memory. (See Abstract.) Hence, Lee does not disclose or suggest the storing of the return address in the first and second stacks at the same time, where the second stack stores a return address for each function call instruction that calls a called function during program execution, as in Claim 1.

Furthermore, Lee does not disclose or suggest executing an exception handling code when the return addresses do not match, wherein the exception handling code determines what value to pass a program pointer based on the return address retrieved from each of the first and second stacks, as in Claim 1. Therefore, the Examiner has not identified, and applicants are unable to discern any portion of Lee or the references of record which disclose or suggest saving a return address in a first stack and in a second stack at the same time, wherein the

second stack stores a return address for each function call that calls a called function during program execution, much less wherein the exception handling routine determines what value to pass to a program pointer based on the return address retrieved from each of the first and second stack, as in Claim 1.

For each of the above reasons, therefore, Claim 1 and all claims which depend on Claim 1 are patentable over the cited art. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the §102(e) rejection of Claims 1 and 5.

Each of Applicants' other independent claims includes limitations similar to those highlighted in Claim 1, as discussed above. Therefore, all of Applicants' other independent claims, and all claims which depend on them, are patentable over the cited art for similar reasons. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §102(e) rejection of Claims 6-20.

DEPENDENT CLAIMS

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicant's silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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Dated:

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CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being transmitted by facsimile on the date shown below to the United States Patent and Trademark Office.

 4/8/08
Elaine Kwak

4/8/08

Date